

TDE1737
TDF1737

INTERFACE CIRCUIT - RELAY AND LAMP-DRIVER

- HIGH OUTPUT CURRENT
- ADJUSTABLE SHORT-CIRCUIT PROTECTION
- THERMAL PROTECTION WITH HYSTERESIS TO AVOID THE INTERMEDIATE OUTPUT LEVELS
- LARGE SUPPLY VOLTAGE RANGE : + 8 V to + 45 V

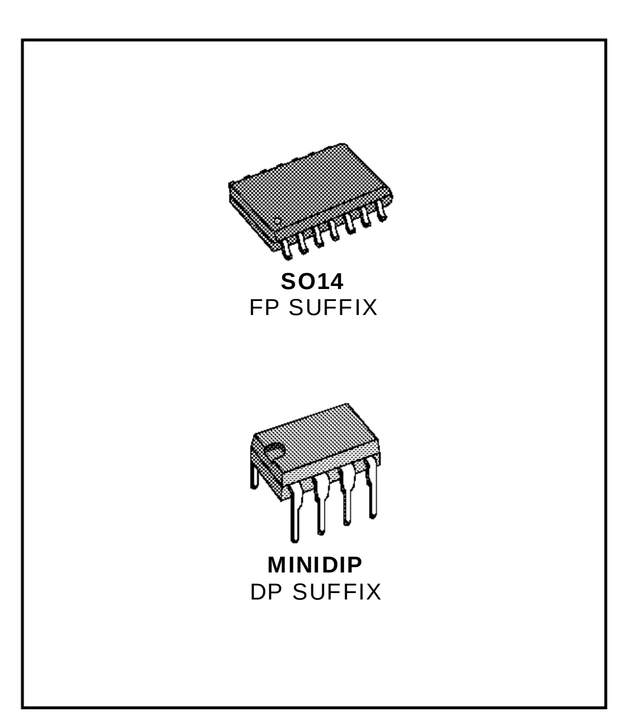
DESCRIPTION

The TDE1737-TDF1737 is a monolithic amplifier designed for high current and high voltage applications, specifically to drive lamps, relays and control of stepper motors.

This device is essentially blow-out proof. Current limiting is available to limit the peak output current to a safe value, the adjustment only requires one external resistor. In addition, thermal shut down is provided to keep the I.C. from overheating. If internal dissipation becomes too great, the driver will shut down to prevent excessive heating.

The output is also protected against short-circuits with the positive power supply.

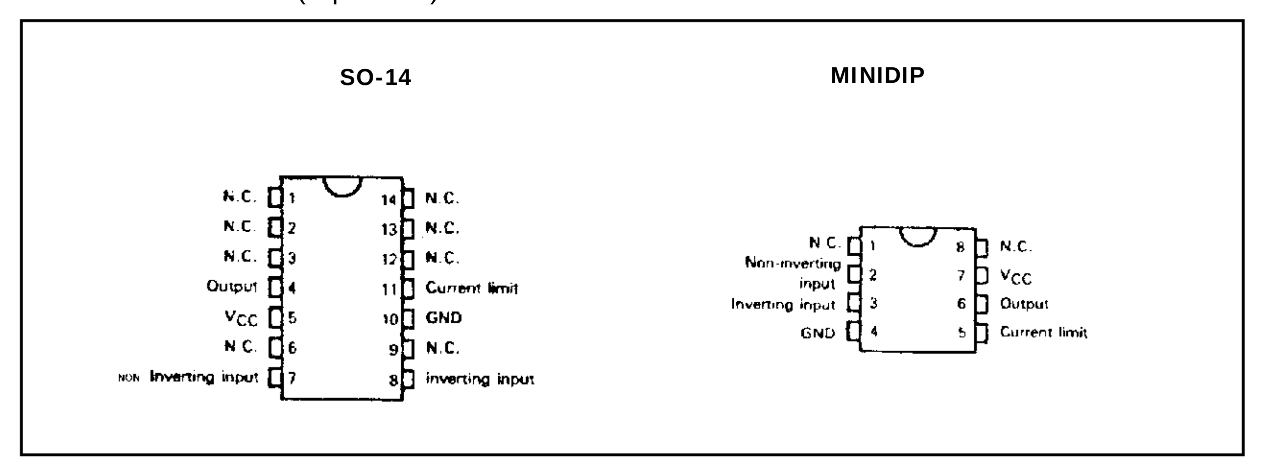
The device operates over a wide range of supply voltages from standard ± 15 V operational amplifier supplies down to the single + 12 V or + 24 used for industrial electronic systems.



ORDER CODES

Part Number	Temperature Range	Package DP	Package FP
TDE1737	– 25 °C to + 85 °C	•	•
TDF1737	– 40 °C to + 85 °C	•	•
Example : TDE1737DP			

PIN CONNECTIONS (top views)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage	50	V
V_I	Input Voltage	50	V
V_{ID}	Differential Input Voltage	50	V
I_O	Output Current	1000	mA
P_{tot}	Power Dissipation	Internally Limited	W
T_{oper}	Operating Free–air Temperature Range for TDE1737	– 25 to + 85	°C
T_{oper}	Operating Free–air Temperature Range for TDF1737	– 40 to + 85	°C
T_{stg}	Storage Temperature Range	– 65 to + 150	°C

THERMAL CHARACTERISTICS

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Maximum Junction-case Thermal Resistance MINIDIP	50	°C/W
$R_{th(j-a)}$	Maximum Junction-ambient Thermal Resistance MINIDIP	120	°C/W
	Junction-ceramic Substrate (case glued to substrate) SO14	90	°C/W

ELECTRICAL CHARACTERISTICS

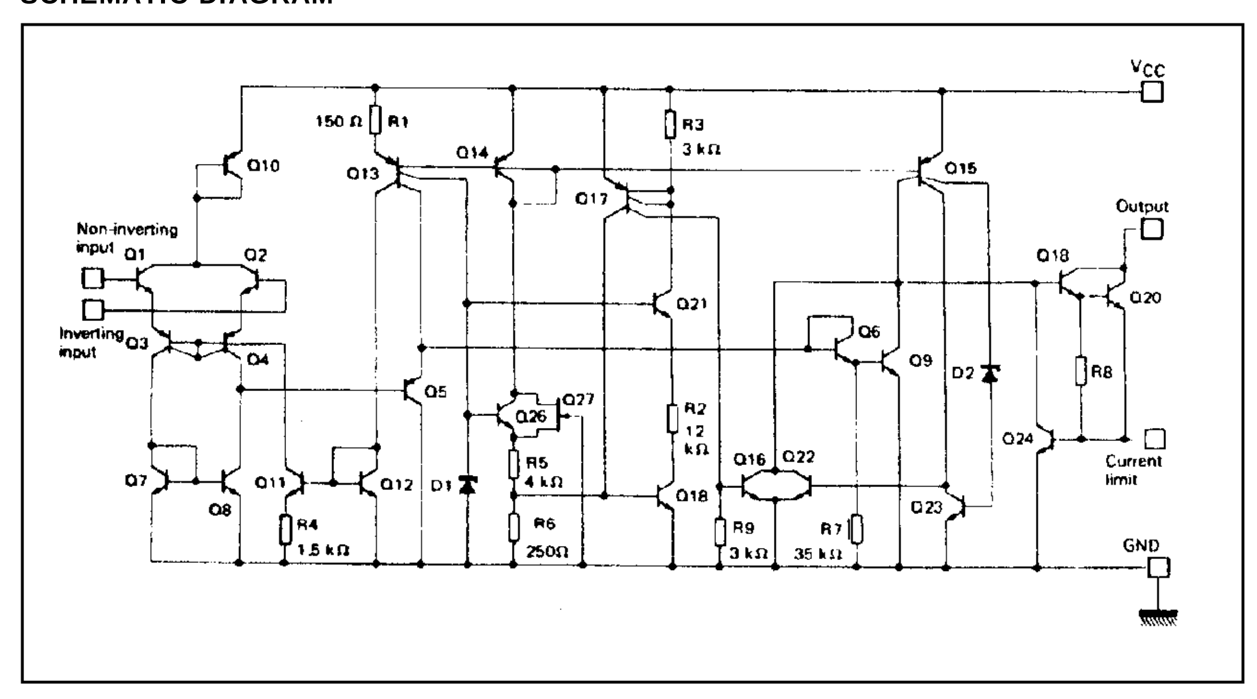
TDE1737 – 25 °C ≤ T_{amb} ≤ + 85 °C, + 8 V ≤ V_{CC} ≤ + 45 V, I_O ≤ 300 mA, T_j ≤ + 150 °C
(unless otherwise specified)
TDF1737 – 40 °C ≤ T_{amb} ≤ + 85 °C, + 8 V ≤ V_{CC} ≤ + 45 V, I_O ≤ 300 mA, T_j ≤ 150 °C

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{IO}	Input Offset Voltage – (note 1)	–	2	50	mV
I_{IB}	Input Bias Current	–	0.1	1.5	µA
I_{CC}	Supply Current (V_{CC} = + 24 V, I_O = 0)	–	3	5	mA
V_{CM}	Common–mode Input Voltage Range	2	–	V_{CC}–2	V
I_{SC}	Short–circuit Current Limit (R_{SC} = 1.5 Ω, T_{case} = + 25 °C)	–	500	–	mA
V_{CC}–V_O	Output Saturation Voltage (output low) ($V_I^+ - V_I^-$ ≥ 50 mV I_O = 300 mA, R_{SC} = 0)	–	1	1.5	V
I_{OL}	Output Leakage Current (output high) (V_O = V_{CC} = + 24 V, T_{amb} = + 25 °C)	–	–	10	µA

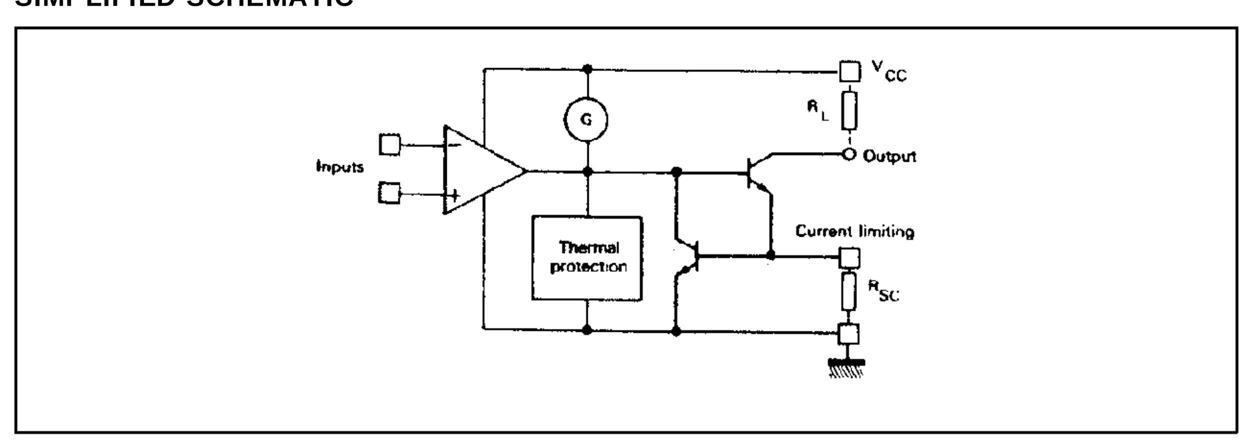
Notes : 1. The offset voltage given is the maximum value of input voltage required to drive the output voltage within 2 V of the ground or the supply voltage.
2. Devices bonded on a 40 cm^2 glass-epoxy printed circuit 0.15 cm thick with 4 cm^2 of cooper.



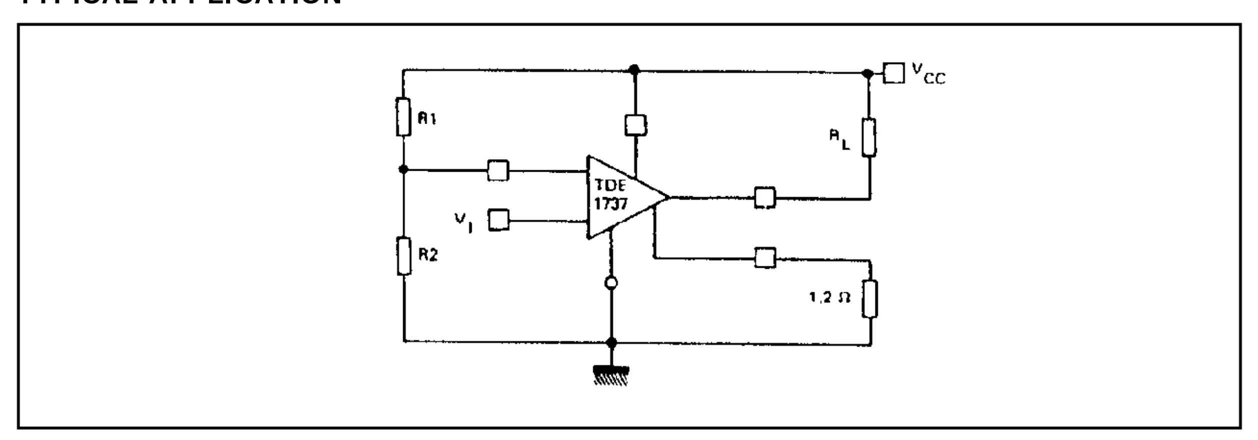
SCHEMATIC DIAGRAM



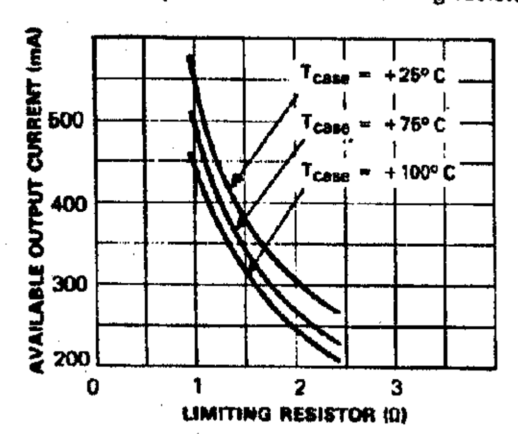
SIMPLIFIED SCHEMATIC



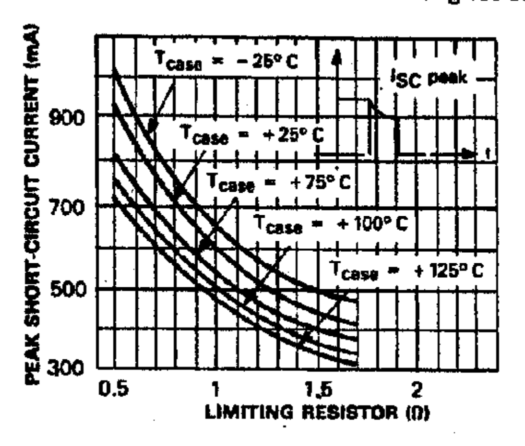
TYPICAL APPLICATION -



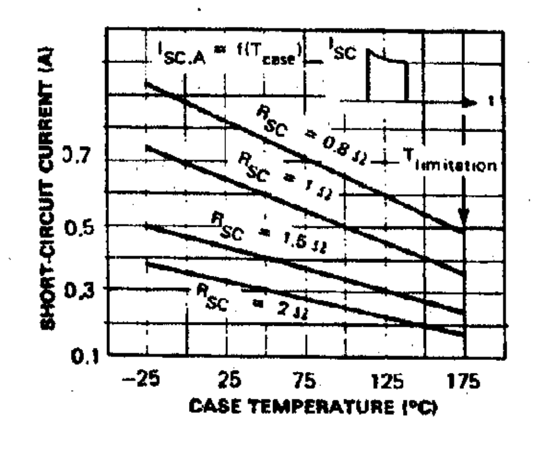
Available output current versus limiting resistors



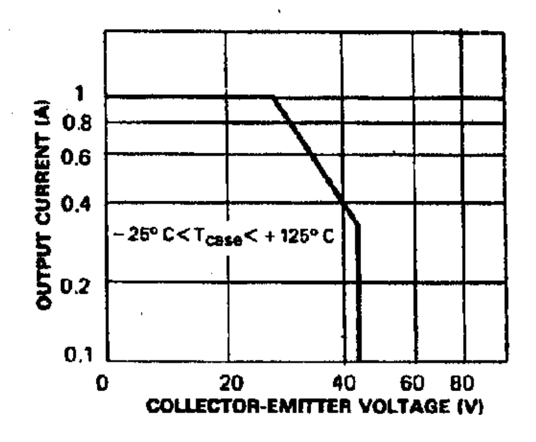
Peak short-circuit current versus limiting resistor



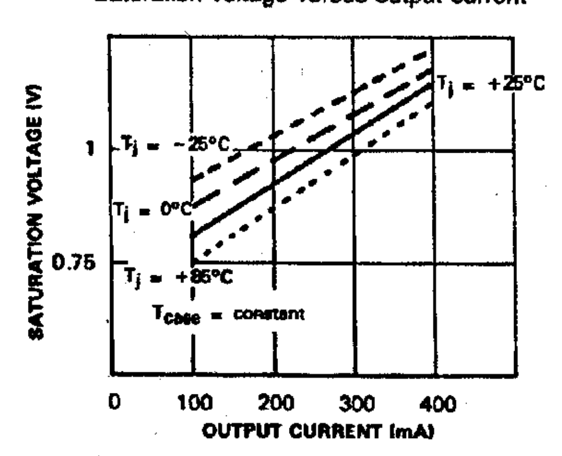
Short-circuit current versus case temperature



Safe operating area (non repetitive overload)

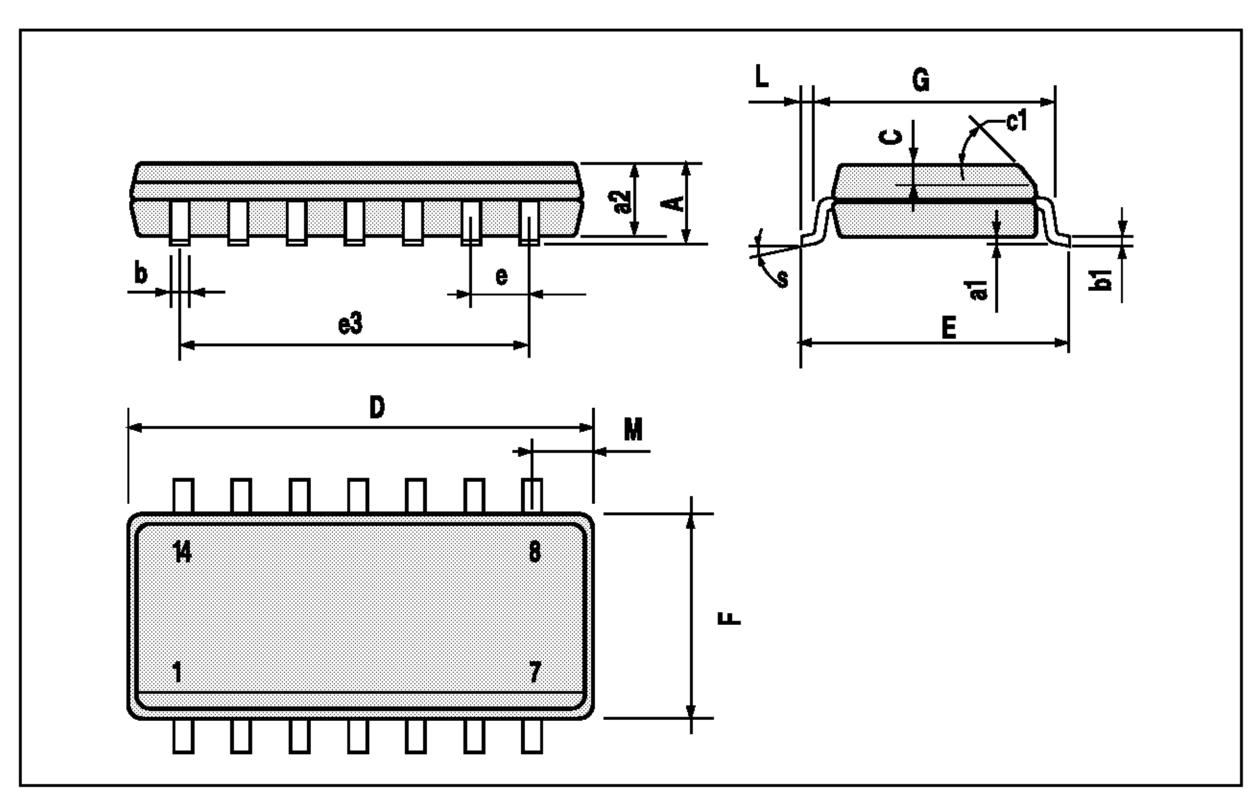


Saturation voltage versus output current



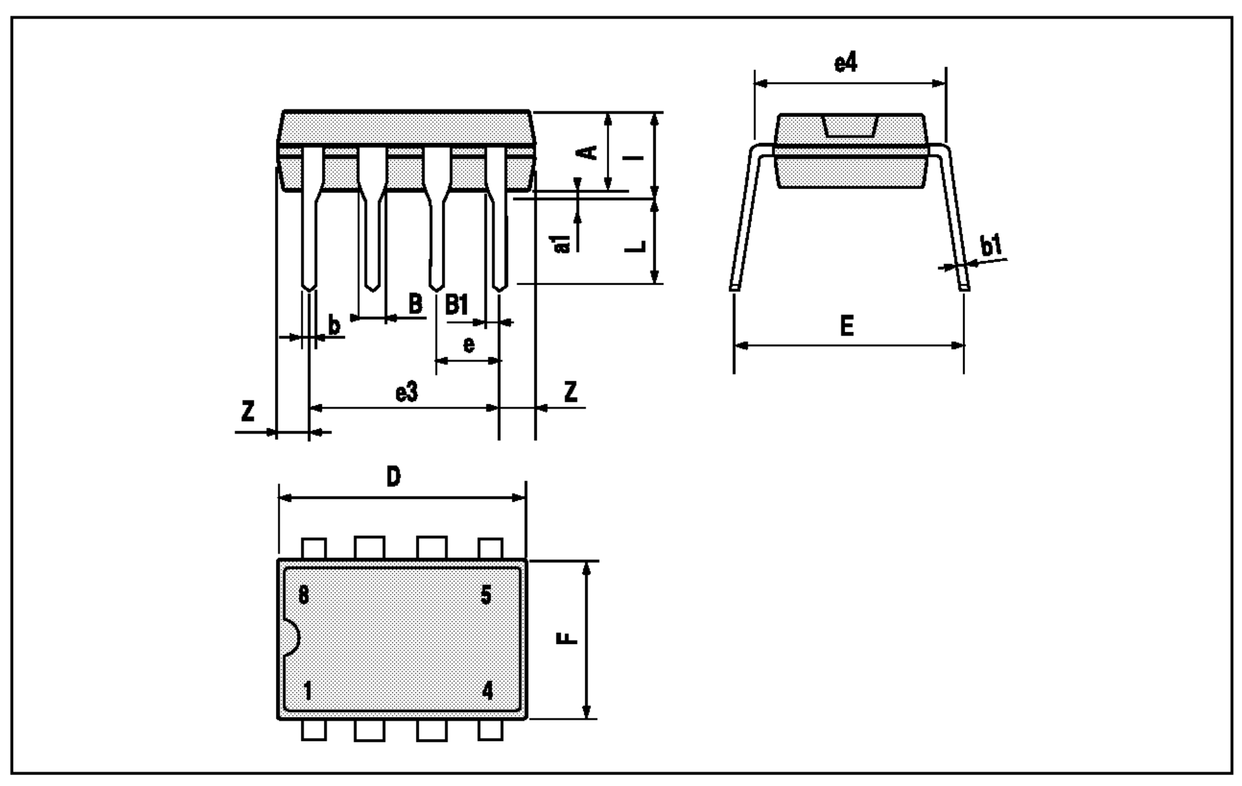
SO14 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.75			0.069
a1	0.1		0.25	0.004		0.009
a2			1.6			0.063
b	0.35		0.46	0.014		0.018
b1	0.19		0.25	0.007		0.010
C		0.5			0.020	
c1	45 (typ.)					
D	8.55		8.75	0.336		0.344
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		7.62			0.300	
F	3.8		4.0	0.15		0.157
L	0.4		1.27	0.016		0.050
M			0.68			0.027
S	8 (max.)					



MINIDIP PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0.260
I			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060




SGS-THOMSON
MICROELECTRONICS